

Claims

1. A method for transmitting signals between a first radio station (1) and a second radio station (2), in which a pre-equalization of the signals to be transmitted is done in a modulator (4) of the first radio station (1), characterized in that the pre-equalized signals are transmitted from the first radio station (1) to the second radio station (2) via a plurality of radio channels (20, 25).

2. The method of claim 1, characterized in that one pre-equalized signal at a time is transmitted by a plurality of antennas (50, 55) of the first radio station (1) and via a respective radio channel (20, 25) to the second radio station (2), wherein for each radio channel (20, 25) an estimate of an impulse response is ascertained in the first radio station (1), and a pre-equalization of the signal to be broadcast from the applicable antenna (50, 55) is performed as a function of the estimate of the impulse responses of the radio channels (20, 25).

3. The method of claim 2, characterized in that a reference signal is transmitted from an antenna (60) of the second radio station (2) to the first radio station (1) via the radio channels (20, 25), and that the estimate of the impulse response of the respective radio channel (20, 25) is derived from a reception of the reference signal in the first radio station (1) via the respective radio channel (20, 25).

4. The method of claim 1, 2 or 3, characterized in that a pre-equalized signal broadcast by the first radio station (1) is received by a plurality of antennas (60, 65) of the second radio station (2), each via a respective radio

5 channel (20, 25), and in the first radio station (1) an
estimate of a total impulse response of all the radio
channels (20, 25) is ascertained, and a pre-equalization of
the signal to be broadcast by the first radio station (1) is
performed as a function of the estimate of the total impulse
10 response, and that the received signals formed by the
antennas (60, 65) of the second radio station (2) are
combined linearly and are then delivered to a demodulation.

5 5. The method of claim 4, characterized in that one
reference signal is transmitted from the antennas (60, 65) of
the second radio station (2) to the first radio station (1)
via the associated radio channel (20, 25), and that the
estimate of the total impulse response is derived from a
superimposed reception of the reference signals in the first
radio station (1).

5 6. The method of claim 5, characterized in that each
reference signal is multiplied by a coefficient as a function
of the radio channel (20, 25) used for its transmission, and
that in the linear combination of the signals received by the
5 antennas (60, 65) of the second radio station (2), each
received signal is multiplied by the coefficient of the radio
channel (20, 25) used for its transmission.

5 7. The method of one of the foregoing claims,
characterized in that via further radio channels, signals are
transmitted between the first radio station (1) or the second
radio station (2) and further radio stations (3), wherein the
data from different radio stations transmitted with the
signals is expanded with different codes, and that the pre-
equalization is performed in the modulator (4) of the first
radio station (1) as a function of all the different codes
and of the transmission properties of all the radio channels.

8. The method of claim 7, characterized in that the transmission properties of the radio channels are ascertained from data transmissions of the second radio station (2) and the further radio stations (3) to the first radio station (1).

9. A radio station (1) having a modulator (4), in which a pre-equalization of signals to be transmitted is effected in the modulator (4), characterized in that at least two antennas (50, 55) are provided, from which a broadcasting of the pre-equalized signals is effected, via a respective radio channel (20, 25), to a further radio station (2).

10. The radio station (1) of claim 9, characterized in that at least one channel estimator (11, 12) is provided, which for each radio channel (20, 25) ascertains an estimate of its impulse response, and that the pre-equalization of the signal to be broadcast in the respective antenna (50, 55) is effected as a function of the estimates of the radio channels (20, 25).

11. The radio station (1) of claim 9 or 10, characterized in that a code generator (5) is provided, which expands the data transmitted with the signals with a code, wherein the code generator (5) ascertains the code as a function of a selected radio connection, and that the pre-equalization of the signal to be broadcast by the respective antenna (50, 55) is effected as a function of all the currently used codes and of the transmission properties of all the currently used radio channels.

12. A radio station (2) having at least two antennas (60, 65), characterized in that by means of the at least two

